

# Nuclear Division News



A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 8/No. 8/April 14, 1977

## Tennessee Press visits Oak Ridge

The Tennessee Press Association held its annual board of directors meeting in Oak Ridge recently. The information meet included Nuclear Division and ERDA officials highlighting activities in the Oak Ridge area.

Tom Hill, publisher of **The Oak Ridger**, was master of ceremonies in the morning session. Herman Postma, director of Oak Ridge National Laboratory, gave an overview of the national energy picture. Lochlin Caffey, director of the Clinch River Breeder Reactor Plant Project, described the CRBR to the newsmen.

Clayton D. Zerby, director of the Office of Waste Isolation (OWI) for the Nuclear Division, outlined the national waste terminal storage program. Murray W. Rosenthal, associate director of ORNL's Advanced Energy Systems, detailed non-nuclear energy programs.

Robert J. Hart, Manager of ERDA's Oak Ridge Operations, welcomed the newsmen and newswomen to Oak Ridge, and Roger F. Hibbs, President of the Nuclear Division, spoke briefly at the luncheon.

The media people toured facilities in the afternoon including the High Flux Isotope Reactor (HFIR) at ORNL; the Toll Enrichment Facility and a demonstration cell at ORGDP; and the Fusion and Energy Conservation facilities at Y-12.

A panel discussion ended the all-day session at the American Museum of Atomic Energy. (Photographs on page 2).

## Daylight savings time set Sunday, April 24

Daylight savings time will commence at 2 a.m. Sunday, April 24. It will automatically become 3 a.m. as clocks are moved forward for the spring and summer months. The clocks will be rolled back Sunday, October 30.

Employees working on the third shift will clock in on EST and CST (in Oak Ridge and Paducah) and clock out on daylight savings time, which means if you are at work, you'll only have to put in seven hours that shift.

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## Stored at -321 degrees

## Pancreas freezing attempt successful

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ORNL biologists have successfully frozen and thawed pancreases from rat fetuses, a development which could lead to improved techniques for human organ transplantation.

The extreme temperatures at which this has been achieved—as low as 321 degrees below zero—mean that the organs could be stored without damage for as long as 100 years or more, according to the researchers.

Although instances of successful organ freezing have been reported in the past, the results have been sporadic and inconsistent. The ORNL study marks one of the few instances in which successful results have been reported on a reliable basis.

A key to the success has been the application of knowledge gained in previous Oak Ridge studies of factors critical to cell survival.

The technique may prove to be useful as a guide to freezing other mammalian organs, including those from humans, according to the ORNL researchers. The ability to freeze organs for use at a later date, they point out, would help overcome the biggest obstacle to present-day organ transplantation: rejection of foreign tissue by the recipient.

Organs typed by genetic makeup and frozen could later be matched to a genetically similar recipient—much the same system used today by blood banks.

### Outgrowth of UCLA study

Long-term low-temperature storage of organs—storage for months or years—requires temperatures below -70 degrees Centigrade, or -94 degrees Fahrenheit. In most previous attempts they have been irreversibly damaged below -20 degrees C (4 degrees F). In the course of the ORNL study, the organs were successfully frozen first to -78 degrees C (-108 degrees F), then to -196 degrees C (-321 degrees F).

"At that point you know you can keep the organ indefinitely—maybe a century or so," says Peter Mazur, head of ORNL's cryobiology (low-temperature biology) group. "There just are no chemical reactions that can occur at that temperature."

The ORNL study was undertaken after scientists at the University of California at Los Angeles (UCLA) demonstrated in 1975 that diabetes which had been chemically induced in laboratory rats could be reversed by implanting pancreases from fetal rats of the same genetic background. (Diabetes is a hereditary metabolic disorder in which the patient has an intolerance for carbohydrates; it is caused by insufficient insulin, which



**CONSISTENT RESULTS**—ORNL biologists Ray Rajotte (left), Lucia Cacheiro and Peter Mazur record data on urine specimens from a rat whose experimentally-induced diabetes was reversed following implantation of a fetal rat pancreas which had been frozen to and stored at -321 degrees F. Although instances of successful organ freezing have been reported in the past, the results have been sporadic and inconsistent; the ORNL study marks one of the few instances in which successful results have been reported on a reliable basis.

is normally produced by the pancreas.) As a follow-up to this study, the UCLA experimenters hoped to freeze the fetal pancreases and genetically type them for later implantation in non-inbred rats—those of differing genetic backgrounds.

When their pancreases subsequently failed to survive the freezing process, they turned to ORNL, whose cryobiology group had recent success freezing tissue culture cells, red blood cells and, most recently, mouse embryos.

### Freezing done slowly

Critical cryobiological factors affecting cell survival which Mazur and his co-workers had identified in their previous work were applied to the pancreas freezing experiment. The organs were frozen slowly, at the rate of less than one degree per minute, so that the cells dehydrated as they froze, preventing the formation of potentially damaging ice inside them. Thawing was likewise slow.

In order for a cell or an organ to survive freezing and thawing, the researchers had found earlier, it is necessary to suspend it in a solution of a protective additive, which dilutes the ions inside the cells to keep them from reaching dangerously high proportions as the cells freeze. The concentration of the additive should be high, but must not reach toxic levels.

Also, since it was allowed to permeate the cells before freezing, the additive had to be diluted and removed very carefully after thawing to avoid damage as it passed back out through the cell surfaces.

The criterion used by the researchers for measuring the success of their procedure was the ability of the thawed pancreases to synthesize protein, which they did—80 to 100 percent as much protein as is synthesized by unfrozen organs. The UCLA team has also done preliminary work on transplanting the thawed organs onto the surfaces of kidneys of adult animals, and indications are that the pancreases are able to reverse experimentally-induced diabetes, the ultimate criterion of success.

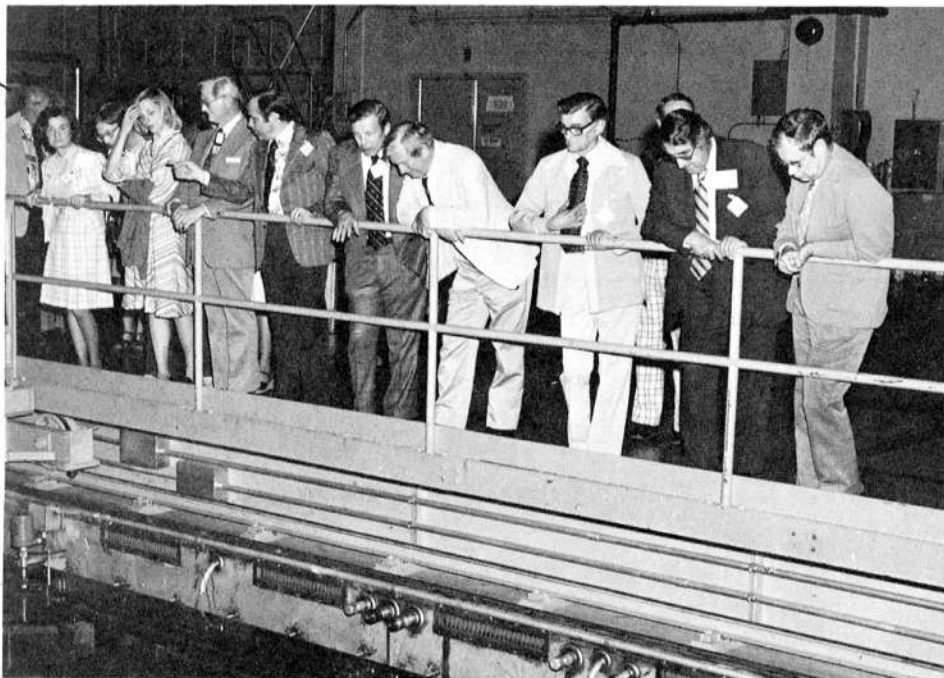
### Fetal organs aid success

The use of fetal pancreases—specifically at the age of about 17 days—for the freezing attempt had its roots in the original UCLA study. The pancreas consists of two types of cells: "islets of Langerhans" cells, the endocrine or hormone-releasing cells which are the insulin-producers; and exocrine cells, which release digestive enzymes. At 17 days, the proportion of exocrine cells (which changes daily in the course of fetal development) is still rather small. This was probably important to the success of the UCLA

(Please see page 8)



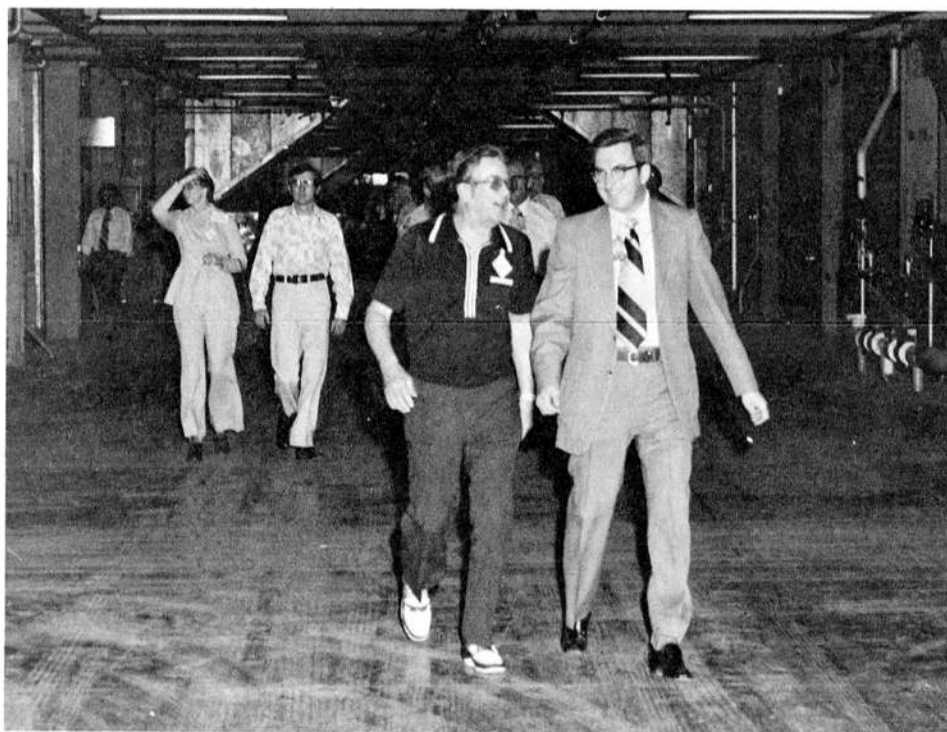
# Tennessee Press Association visits facilities



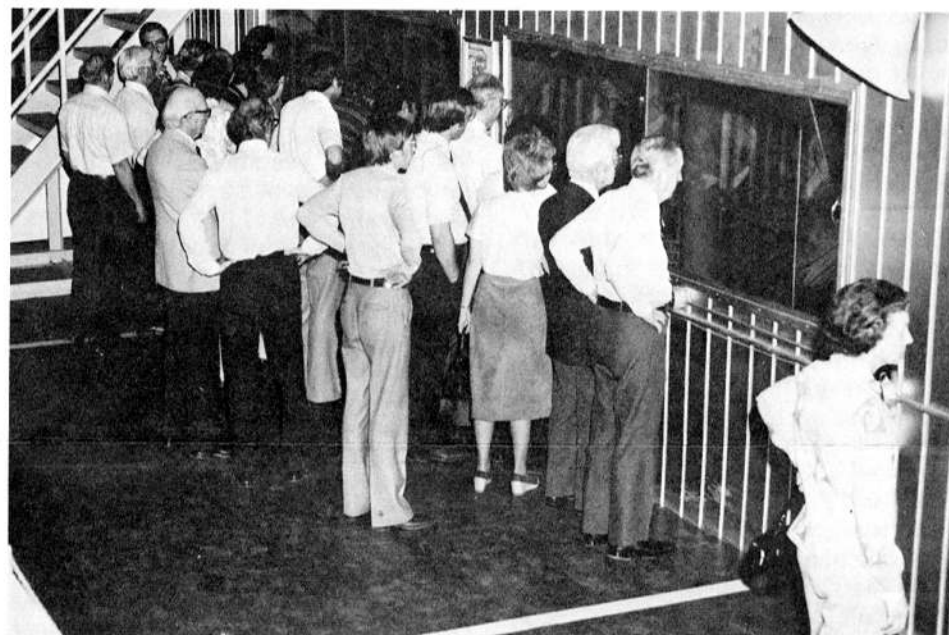
**OBSERVE REACTOR BAY**—Members of the working press of Tennessee view the bay area of the High Flux Isotope Reactor. The media people toured facilities in the Oak Ridge area recently on their first visit to this area.



**Operations hold newsmen's attention**



**Ken Sommerfeld chats with Don McKay, former publisher of *The Oak Ridger*.**



**View demonstration cell at ORGDP**

## New staff member joins planning group

Jimmy T. Bell has joined the Program Planning and Analysis staff on a full-time basis. He succeeds John E. Jones Jr., who returned to the Engineering Technology Division to coordinate the NRC Reactor Safety Research program.

Bell will coordinate the Laboratory's "Seed Money" program and work with the Proposal Review Committee. In addition to participation in special studies undertaken by the group, he will also be responsible for planning the monthly Research Committee meetings.

Bell worked 11 years as a research chemist in the Chemical Technology Division before his group was transferred to the Chemistry Division in 1974. Prior to his new appointment, Bell was group leader in the Chemistry Division with responsibility for the spectrophotometry and tritium programs.

He received a Ph.D. in physical chemistry from the University of Mississippi and a B.S. in chemistry from Berry College.

Bell and his wife, Luci, live at Crestwood, Route 4. They have two children, Carol and Steve.

## P&E promotion



**Billingsley**

The appointment of James S. Billingsley as supervisor in the Field, Transportation, and Support Services Department of ORNL's Plant and Equipment Division has been announced by the Division.

A native of Knoxville, Billingsley was promoted from supervisory trainee. Before joining the Laboratory in 1967, he was employed by Leopold and Orr Plumbing and Heating Company in Knoxville.

Billingsley and his wife, Peggy, live at 2832 Gardenia Avenue, Knoxville, with their two children, Debbie and Jennifer.



**PRESSMEN VISIT**—Members of the Tennessee Press Association hear William H. Culbert, Operations Division, explain the operating cycle of the High Flux Isotope Reactor (HFIR).



## Two B shift promotions announced at Paducah



Watkins

Perry

Two recent promotions have been announced at the Paducah Plant. Robert E. Perry has been named B shift superintendent and James C. Watkins has been named cascade coordinator for that shift.

Perry, who has been with Union Carbide 25 years, has been assistant area supervisor and cascade coordinator. Before joining the Paducah plant, he was with Wallace and Tierman Company.

He holds a B.S. in business administration from the University of Tennessee, and has done graduate work there in engineering.

Perry and his wife, Nancy, live on Friedman Lane, Paducah. They have two children, Chris and Jeff.

Watkins attended Paducah Junior College and Murray State University before joining Union Carbide more than 25 years ago. He has previously worked as cascade operator, shift foreman and assistant area supervisor.

He and his wife, Ann, live on Piedmont Road, Paducah, with their two children, Cathy and Chris.

### Warm weather energy-saver

Run air conditioners only on really hot days and set the fan speed at high. In very humid weather, set the fan at low speed to provide less cooling but more moisture removal.

## Instrumentation & Control names Herbert Hill director

The appointment of Herbert N. Hill as director of the Instrumentation and Controls Division (I&C) at ORNL has been announced by Herman Postma, ORNL director.

Hill is presently a project manager at the Technical Center of Union Carbide Corporation's Chemicals and Plastics Division in South Charleston, West Virginia.

In his new assignment, effective in early May, he will report to Donald B. Trauger, ORNL associate director for nuclear and engineering technologies.

Hill succeeds Casimer J. Borkowski, a member of the Laboratory staff since 1943 and director of I&C for the past 23 years. After the transfer of management, Borkowski will return to research in the division's basic measurement science group until his retirement effective August 1.

As division director, Hill will be responsible for research, support and maintenance functions which involve a staff of some 320 persons.

A native of West Virginia, Hill studied at Morris Harvey College in Charleston, W. Va., and at the University of Houston, before receiving his B.A. degree in physics in 1955 from Rice University. He also has taken postgraduate classes in chemical engineering at the West Virginia Institute of Technology.

Hill joined Union Carbide in 1947 to work in the quality control laboratory for synthetic fibers, and a year later moved to the process control and instrumentation group in Charleston. From 1969 to 1974, he was supervisor of Special Instrument Development and previously had been re-



Herbert N. Hill

sponsible for a number of special instrument development projects.

He also played a major role in the start up of Union Carbide's environmental instrument department of the Electronics Division in White Plains, New York.

Most recently, he has been project manager for the \$70 million Gulf Coast Ethylene Pipeline Project, which will link the Chemicals and Plastics Division's Taft, Louisiana and Seadrift, Texas, plants.

Hill holds several U.S. patents and is the author of numerous technical publications. He and his wife, Lucille, have three sons, John, William and Stephen, and two daughters, Julia and Laura.

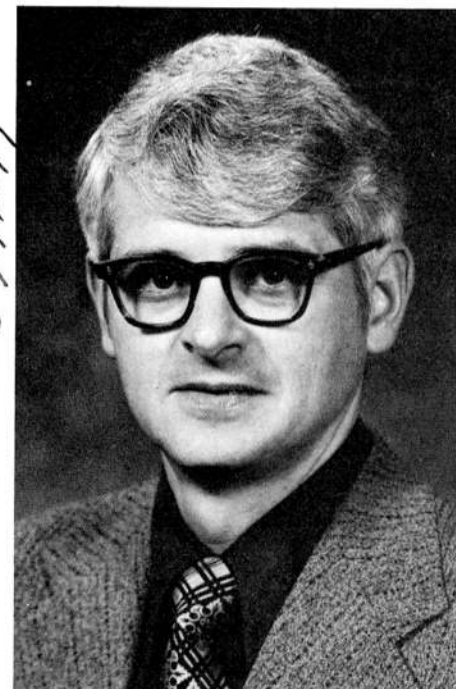
## ACS to honor Lackey as fellow

W.J. Lackey, Metals and Ceramics Division (M&C), will receive the honor of Fellow of the American Ceramics Society (ACS), April 26, in Chicago during the annual meeting. Lackey has been active in the society since joining as a student in 1960.

Lackey joined the Laboratory in 1969 and is currently group leader of the fuel cycle technology group in the M&C Division.

While at North Carolina State University in Raleigh, he received B.S. degrees in metallurgical and ceramic engineering in 1961, an M.S. degree in ceramic engineering in 1963 and a Ph.D. degree in ceramic engineering in 1969. He also received the University's Knight of St. Patrick Award for the outstanding engineering student in 1961.

Lackey and his wife, Betty, reside in Oak Ridge with their two daughters, Amy and Laura.



W.J. Lackey Jr.

## Cochran displays watercolors at I&C



**WATERCOLOR LANDSCAPES**—of local mountains and inhabitants are Howard E. Cochran's specialties. Look for his artwork in the lobby of Building 3500, ORNL.

The Instrumentation and Controls Division (I&C) provides the opportunity for personnel to display their artworks.

Currently, Howard E. Cochran's paintings are on display in the lobby of Building 3500. His works are primarily watercolor landscapes of local Tennessee mountains and people.

Cochran—a craftsman, woodcarver and stonecarver—is an associate member of the Knoxville Watercolor Society and the Southern Highland Handicraft Guild. Helen Bullard's book, **Crafts and Craftsmen of the Tennessee Mountains**, salutes his work.

For 23 years, Cochran has worked as an engineer in the I&C Division.

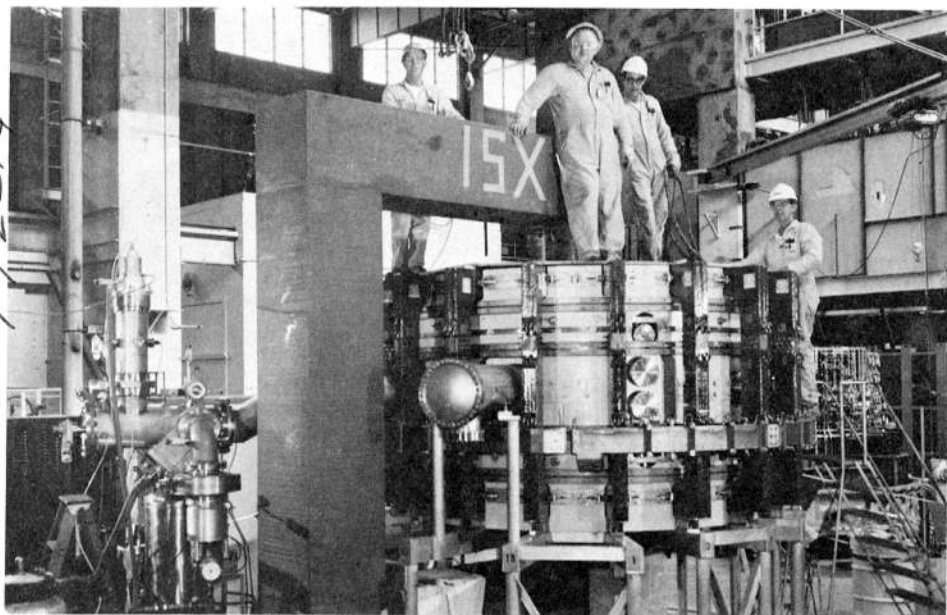
## safety scoreboard

Time worked without a lost-time accident through April 14:

Paducah	48 Days	578,200 Man-Hours
ORGDP	93 Days	2,954,735 Man-Hours
Y-12 Plant	50 Days	1,396,000 Man-Hours
ORNL	203 Days	4,122,849 Man-Hours



# ISX: new device to test fusion reactor concepts



Y-12 craftsmen pause following the assembly of major components of the Impurity Study Experiment (ISX) in the ORNL Fusion Energy Division. The new device will be used to study impurities which can occur in the plasma fuel. The men, from left, are: Wendell E. Foust, Robert B. Bullard, Clayton A. Duncan and Ray C. Futrell.

A unique, new fusion research device called the Impurity Study Experiment (ISX) has begun operation at ORNL to test fusion reactor concepts.

Fusion, source of the sun's energy, is an unlimited energy supply which scientists in the U.S. and other countries are trying to develop. ISX will be a large step toward a practical fusion reactor based upon the tokamak concept. Tokamaks, developed in the USSR during the 1960's, are doughnut-shaped devices in which a magnetic field holds an ionized hydrogen gas at a temperature of 20 million degrees Fahrenheit.

The ISX will also be used to study impurities that can find their way into the hot fusion gases, or plasma, thereby slowing down the energy release process. The impurities are atoms that break free from the inner walls of fusion devices. It is important to understand how these atoms interact with the plasma and to develop means to reduce their effects.

An assortment of sophisticated techniques and instruments, including x-rays and laser beams, will be used to count and track the "foreign" atoms as they break away from the walls and interact with the plasma.

ISX is unlike other tokamaks, in that the inner chamber walls can be easily removed and replaced. By testing walls made of different materials and in different shapes, it will be possible to learn which materials cause more, or less, foreign matter to enter the plasma.

The ISX project has been completed under the direction of the project team consisting of Thomas C. Jer-nigan, project manager, Norman W. Durfee, project engineer, and David C. Lousteau, principal engineer. The ISX experimental program will be conducted jointly between the ORNL Fusion Energy Division and the General Atomic Company, San Diego, Calif.

## about people . . .



Blanton

A new face can be seen working as assistant chief librarian of ORNL Libraries — **Janice M. Blanton**. The former head of reference of the Central Research Libraries, Blanton was recently promoted to assistant chief librarian under Raymond R. Dickison, chief librarian, ORNL Libraries. She replaces Lois M. Morris, who retired in December.

Before moving to Oak Ridge in 1968, she was library supervisor for the Jackson County Public Schools in North Carolina. In this position, Blanton initiated the operation of one of the first technical processing centers for library materials in the state.

Other jobs at ORNL include a member of the reports section, ORNL Libraries, and head of the Y-12 Technical Library.

She lives on Mountain Road in Clinton with her husband, Curtis R. Blanton, and son, Samuel.



Fain

**Douglas E. Fain**, a physicist in ORGDP's Barrier Development Division, has been appointed to serve on the Development Disabilities Planning Council for the State of Tennessee. The council determines what services and resources are being used by state, local and non-governmental agencies for handicapped persons. Fain has served on the Board of Community Services for Exceptional Citizens, is chairman of the Oak Ridge Advisory Committee for Developmentally Handicapped.

## retirements



Vernon C. Elms  
Paducah Electrical  
24 years service



Roy M. Hartman  
Plant and Equipment  
ORNL  
33 years service



Albert T. Skinner  
Purchasing Division  
9 years service



Elvis Crafton  
Paducah Electrical  
21 years service



Thomas J. Walters  
Y-12 Electrical  
25 years service



Mary C. Johnson  
ORGDP Special  
Projects  
32 years service



James C. Ratliff  
Operations Division  
ORNL  
31 years service



Emma H. Norman  
Computer Sciences,  
ORGDP  
26 years service

## High waters at the weir



**HIGH TIDE**—A weir at the ORNL Walker Branch Watershed is used to measure water yield. During last week's heavy rains, the water was two feet, eight inches above the "V-notch," with a flow rate of 48 cubic feet per second (CFS). Compare this to a dry week's flow, insert, where the water measures only three inches above the notch, with a flow rate of 1.5 CFS—320 times less than last week's high.



## question box

If you have questions on company policy, write the Editor, Nuclear Division News (or telephone your question in, either to the editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.

### Company bus service

**QUESTION:** The traffic from Pellissippi and Oak Ridge Highway has increased noticeably in the last three months. I am aware that the vanpool system is being used, but has any consideration been given to offering a bus service similar to the TVA system?

**ANSWER:** About two years ago, a UT-TVA team surveyed Nuclear Division employees' interest in busing to and from East Knoxville. There was not enough interest to generate any action at that time. The economics involved indicate busing is not feasible for the bulk of the Nuclear Division population. At the distance where it becomes economically feasible, the problem of sufficient concentration of employees at the home site and at a particular plant site lessens the probability of a successful busing program. Our conversations with transportation experts indicate the Nuclear Division's best hope for success for ride-sharing is in carpools and, secondarily, in vanpools. We will be placing renewed emphasis on both carpools and vanpools in the next few months. The savings in energy and money for all concerned cannot be ignored.

### Vacation eligibility

**QUESTION:** For someone who joined the Nuclear Division in September, 1974, when is the first year in which he/she is entitled to three weeks' vacation? Four weeks'?

**ANSWER:** If there is no break in employment, such an individual would be eligible for three weeks' vacation in 1979 and for four weeks' vacation in 1984. These vacations may be taken at any time during the year that is mutually acceptable to the employee and his/her supervisor.

### Mail stops at portals

**QUESTION:** I do not work near a mail stop in the plant. Why not put mail drops at each portal for the convenience of employees wishing to post personal mail?

**ANSWER:** It must be remembered that the basic mission of the Mail Department is to handle the business correspondence of the Company; therefore, it would not be appropriate to further expand the processing of personal mail as you suggest.

### Heavy work in Purchasing

**QUESTION:** Many buyers in Purchasing are working under extremely heavy working conditions. Those who complain or speak to their supervision are threatened with termination. Is this Company policy?

**ANSWER:** It is true that activity in the Purchasing Division during much of calendar year 1976 was very heavy. A considerable amount of overtime was worked to cope with the heavy job demands. Purchasing management reports that additional buyers and clerical persons have been added to the organization and that this, coupled with decreased purchasing activities,

has reduced the work load to a more reasonable level.

It is not Company policy to threaten anyone. It is, however, Company policy to advise any employee in a timely manner that his/her work performance is marginal, which can lead to termination. If you feel that the circumstances you refer to were in the former rather than the latter category, you should discuss this matter with the General Purchasing Agent.

### Lights in Y-12 Plant

**QUESTION:** Why is it that part of the street lights in the Y-12 parking areas are cut off to save energy, yet all the (street) lights in the plant area are left on during the day?

**ANSWER:** That isn't the case. Some of the lamps in all parts of the Plant and in the parking lots were removed to reduce usage of electricity. All circuits are controlled by "electric eyes" so that lights are normally on only during periods of darkness. Each circuit, however, has an override switch that permits a section of lights to be energized during daylight hours so that electricians can replace burned-out lamps. You must have seen a circuit of the lights energized during routine relamping operations.

### Cashier office improvement

**QUESTION:** Why hasn't some effort been made to modernize or "spruce up" the Y-12 Check Cashing Facility and Travel Office? This area seems to be visited by an enormous number of employees, including top management and visitors from other agencies and installations. A revolving door could solve the problem of being too cold in the winter and too hot in the summer, allowing a constant temperature most of the time.

**ANSWER:** The Y-12 Cashier and Travel personnel and facilities provide certain basic services to plant personnel. The facilities are comparable to most office areas in the plant and are considered adequate for performance of the function and services rendered.

### Searching lunch boxes

**QUESTION:** If an employee refuses to expose the interior of his lunch box, what legal action may Plant Protection personnel take?

**ANSWER:** The Company and all employees have certain security obligations which can only be met through complete cooperation. These safeguards are deemed necessary for the protection of the security interests of the installations, their property and employees. As is stated in the employee handbook, **You at Union Carbide**, "The guards may ask to inspect any bundle or article you may be carrying when entering or leaving the plant. Please cooperate with them. Don't resent their action because they are acting under orders given to protect you and your fellow em-

(Please see page 8)

## Y-12 Development Division lists organizational changes

Several organizational changes have been announced in the Y-12 Development Division by William R. Martin, division director. Robert B. Burditt has been appointed special manufacturing development program manager. Reporting to him will be Robert W. Schede, D.H. Johnson, Charles R. Bieber and Andrea K. Zava, all with special projects in the division. Arthur C. Neeley will also report to Burditt as project manager for advanced technology/process improvements projects.

Other appointments include James E. Ferguson, named group leader of mechanical, physical and vacuum properties; and Gary L. Bowers, project manager for safeguards and development. Both will report to David L. Mason.

Bieber, a 12-year veteran with Union Carbide, is a graduate of Purdue, and also holds an M.S. from the University of Alabama. He has also worked with Diamond Chain, Southern Research Institute and the U.S. Bureau of Mines.

A native of Aurora, Ill., Bieber is married to the former Jeanette Bryan. They live at Route 3, Clinton, with their two children, Michael and Jeffrey.

Bowers has been with Union Carbide 10 years. He has a B.S. from Tennessee Technological University and an M.S. from the University of Tennessee.

Born in Vincennes, Ind., he lives at Tacora Hills, Clinton. Mrs. Bowers is the former Pamela G. Arnold. They have a son, Michael.

Burditt, a native of Elizabeth, N.J., has been with Union Carbide 19 years. He holds a B.S. degree in mechanical engineering from Massachusetts Institute of Technology and an M.S. in physics from UT. He served two years in the U.S. Navy before coming to Y-12.

Mrs. Burditt is the former Jeanette Farley, and the couple has four children, Audrey, Russell, Judith and Carol. They live at 105 Concord Road, Oak Ridge.

Ferguson, a native of Memphis, has a B.S. in chemistry and mathematics from Arkansas Central University and an M.S. in inorganic chemistry from the University of Arkansas.

He has been with Union Carbide 10 years.

Mrs. Ferguson is the former Frances Zackert, and the couple lives at 604 Woodland Drive, Clinton. They have three children, Laura, Melanie and Walter.

Johnson, a native of Rutherfordton, N.C., has a B.S. and an M.S. from Appalachian State University. He joined Union Carbide nine years ago.

Mrs. Johnson is the former Nancy Grayson. They live at 113 Morgan Road, Oak Ridge, with their daughter, Hope.

Neeley was born in Salt Lake City and has a B.S. in engineering from Columbia University. He was with Ford Motor, the USN Bureau of Ships, Yale & Towne and the U.S. Department of Labor. He joined Union Carbide in 1954.

He and Mrs. Neeley, the former Ruthe Hollrock live at 110 Orchard



C.R. Bieber



R.B. Burditt



G.L. Bowers



J.E. Ferguson



D.H. Johnson



A.C. Neeley



R.W. Schede



A.K. Zava

Circle, Oak Ridge. They have four children, Bruce, June Repscher, Steven and Keith.

Neeley is a member of the Oak Ridge Human Resource Advisory Board.

Schede, a native of Mount Vernon, N.Y., has been with Union Carbide 31 years. He served in the U.S. Navy before joining Union Carbide, and has a B.S. in electrical engineering from MIT. He has also done graduate work in physics at UT.

He and Mrs. Schede (the former Bettie Miller) live at 9512 Turnbridge Lane, Concord. They have a son, Warren.

Zava, a native of Richmond, Va., is a graduate of UT-Chattanooga, and is doing graduate work in industrial engineering at UT. She joined Union Carbide in 1966, and is the daughter of Thomas E. Zava, ORGDP Laboratory Division.

Zava is active in the Foothills Craft Guild doing leathersmith work.



## CLIP AND SAVE

### OAK RIDGE GOLF PLAY

Five big golf tournaments have been set for the three Oak Ridge plants' golfers for the spring and summer. A newly named course, the Family YMCA Center, was formerly called Quail Creek, in Lenoir City.

The handicap tournaments are set for April 30, with the schedule listed below. Golfers may wish to clip and save the schedule.

Prizes will be awarded in three divisions for each plant, and will be in the form of golf balls. In the new point system, a bogey earns one point, par two points, a birdie three points and an eagle four points.

#### ORNL Tournaments

April 30	Wallace Hills
May 21	Whittle Springs
June 25	YMCA Center
July 30	Dead Horse Lake
August 27	Southwest Point

#### Y-12 Tournaments

April 30	YMCA Center
May 21	Dead Horse Lake
June 25	Whittle Springs
July 30	Southwest Point
August 27	Wallace Hills

#### ORGDP Tournaments

April 30	Whittle Springs
May 21	Wallace Hills
June 25	Southwest Point
July 30	YMCA Center
August 27	Dead Horse Lake

Greens fees are \$4 at Whittle Springs and YMCA Center; \$4.50 at Dead Horse Lake; and \$5 at Southwest Point and Wallace Hills. Carts are available at all the courses, but these reservations are made by individual golfers.

## More bowling aces ...



**WINNING WOMEN**—The Uptowners took top women's honors in the recent All Carbide Golf Tournament with a combined handicap score of 2436. They are, from left, Myrtle Cowan, Elaine Griffies, Mae Davis, Mary Foley and Maxine Gunter.

### Y-12 bowling ...

The Eightballs hold a one-point lead over the Has Beens in the Classic League. Ray Waldrop of the All Stars rolled a 693/735 replacing Sam Campbell's 613/700.

The Mini-Strikes only have a one-point lead in the C League. J. J. Henry's singles of 295 replaced Gerald Doyle's 267. Bob Carmack's 711 is still tops for individual series.

### Carbide bowling ...

The Quetzecuatles maintain a one-point lead in the Carbide Family Mixed League, over the Hy-Wicki's and the Challengers. Ray Smith and Gloria Long recently rolled series of 658 and 599.

### South Hills golf league ...

An organizational meeting for the South Hills Golf League will be held at 5:30 p.m. at the course next Thursday, April 21. All interested members are urged to attend. Officers will be elected.

### Golf leagues ...

The deadline to sign up for a Carbide Golf League is April 15. Each league is a nine-hole group. Anyone can sign up. The leagues play at the following courses:

South West Point—Monday nights  
Dead Horse Lake—Tuesday nights  
South Hills G. C.—Thursday nights

All interested golfers please call the Recreation office at extension 3-5833 before the deadline.

### ORGDP bowling ...

The Payoffs still top the Uptowners with a nine-point lead in the ORGDP Women's League. Helen Hobson rolled a 525/615 handicap series.

The Hi-Rollers are still high in the Men's Wednesday League. David Gladson rolled a 522/642 handicap series. The Hi-Rollers are four points up on the Planners.

In the Men's Tuesday night league the Mishaps still hold the lead over the All Steers. T. A. Abernathy rolled a 240/274 singles with a 599/701 high handicap series.

### Softball league ...

There will be an organizational meeting for the Carbide Carbon Softball League next Monday, April 18, at 6:30 p.m. in the Craft Room of the Oak Ridge Civic Center. All managers and/or assistants are asked to attend. It is important that each team have at least one representative present for the organization of this mixed league (men and women, that is).

### ORNL bowling ...

The Ten Pins hold an excellent lead in the A League. John Cobbs rolled a 543/633 series.

The Beryls still have a commanding lead in the C League with a 642 rolled by G. Smith for the week's high series.

The Bowling Aces take a six-point lead over their HP-Ettes in the ORNL Ladies League. Lynne Hinton rolled an outstanding 534/672 for the high series thus far.



**MIXED DOUBLES** — Harold Zang and Nell Jago zeroed in on the All Carbide Bowling Tournament with a 1257 to take handicap honors in the winter competition.

wanted



#### ORNL

RIDE from Jackson Square area in Oak Ridge to East Portal, any day shift time. Frank O'Hene, plant phone 3-6553.

VAN POOL MEMBERS from West Knoxville, Walker Springs or Cedar Bluff areas, 8:15-4:45 shift, any portal. C. W. Greene, plant phone 3-1526, home phone 693-3444.

VAN POOL RIDERS from West Knoxville, I-40, Paper Mill Road exit areas, 8:15-4:45 shift. R. L. Pearson, plant phone 3-1875, home phone 588-9949.

#### Y-12 PLANT

RIDE or will join car pool from Alcoa-Maryville vicinity to any portal, H & J shift. Bill Shipwash, plant phone 3-5405, home phone Maryville 577-4320.

#### ORGDP

CAR POOL MEMBERS from Cove Lake to any portal, straight day. E. R. Tapp, home phone Jacksboro 562-4400.

RIDE or will join car pool from Lovell Road section, West Knoxville, to Portal 3 or 4, straight day. Boyd Beets, plant phone 3-3421, home phone Knoxville 966-5312.

### Tee-Off Time Application for April 30

(Check Appropriate Plant)

- ☐ ORGDP—Whittle Springs
- ☐ Y-12—YMCA Center
- ☐ ORNL—Wallace Hills

LEADER \_\_\_\_\_

Phone \_\_\_\_\_

Bldg. \_\_\_\_\_

Time Preferred \_\_\_\_\_

### COMPLETE AND RETURN TO YOUR RECREATION OFFICE

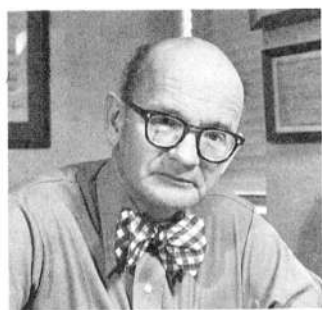
Entries must be received prior to drawing on April 27, 2 p.m.

ORGDP — Building K-1001 — C Wing — MS 122

Y-12 — Building 9711-5 ORNL — Building 2518

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times.





## Oral contraceptives: risk versus benefit

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

Although many lay articles on the hazards of oral contraceptives have been printed during the past five years, there still seems to be much public confusion and uncertainty. This article reviews the current status of the many possible complications associated with use of "the pill" and attempts to put them in perspective.

Approximately 30 to 40 percent of women who start using the pill will stop during the first year because of unpleasant side effects. Common symptoms during the first one to three cycles include weight gain, nausea, abdominal discomfort and headache. In most cases, these symptoms fade and soon disappear completely.

### Side effects

A few women experience a depression which is severe enough to frighten them. It has been related, in a few, to a deficiency of pyridoxine (Vitamin B6) and has responded to vitamin therapy. In other cases it is probably primarily due to underlying psychological conflicts which are aggravated by use of the pill.

A recurrent yeast infection of the vagina can be extremely distressing, even though it is not a dangerous side effect. The infection is relatively easy to treat, but the nuisance may be sufficient to discourage continued use of the pill.

Headaches may occur after many months on the pill. Migraine headaches may appear for the first time, or their frequency may be increased. Fortunately, discontinuing the pill usually stops them or reduces their frequency.

Several skin diseases seem to be associated with prolonged use of the pill. Small blotchy pigmented areas on the face, especially on the temples or forehead, are not hazardous from a health standpoint, but they may be regarded as a "serious" threat to a woman's beauty. Occasionally, women will develop a photosensitivity which will cause them to sunburn extremely easily.

### Diabetes develops

Women who have a genetic predisposition to diabetes may develop the disease sooner than expected because of taking the pill. Women who have blood glucose determinations, made either as a part of a routine periodic physical examination or during a diagnostic study, sometimes show a glucose intolerance. The fasting blood glucose is higher than it should be, and the glucose tolerance test is abnormal.

When the pill is discontinued, the test may return to normal. Unfortunately, the abnormality sometimes persists, and eventually clinical diabetes develops.

Occasionally women who have been taking the pill for a long time will develop a mild anemia. It is thought to be due to a folic acid deficiency. It is a diagnosis that is frequently missed, but fortunately is seldom of great consequence.

The rare, but serious, side effects associated with the pill are blood clotting abnormalities (thromboembolic), heart disease, high blood pressure, cancer and gall bladder disease.

Gallstones occur twice as often in women who use oral contraceptives as in those who do not, and the likelihood increases after prolonged use.

### Hypertension

The incidence of hypertension is about 2½ times greater in pill users than in non-users and is related to prolonged use. Periodic monitoring of blood pressure is usually sufficient to prevent this problem from getting established. When the pressure appears to be getting too high, the pill can be discontinued. The frequency of monitoring may need to be increased in women who have a strong family history of hypertension. Checking the blood pressure every 6 to 12 months is probably adequate for most women.

In a British study, the risk of death from heart attack was about 2½ times greater in pill-using women 30 to 39 years old, and about 4½ times greater in women 40 to 44 years old than in non-users of the same age. The women who died usually also had the presence of other risk factors such as cigarette smoking, hypertension, diabetes, high cholesterol and high triglyceride levels.

Dr. Anrudh Jain, Rockefeller University in New York City, says that the excess risk can be explained in terms of the high proportion of smokers in the study population. He says smoking should be considered a contra-indication for the use of oral contraceptives. It is also well known that the pill can cause an elevated triglyceride and blood pressure level in some women so that the combination of risk factors and the pill can be hazardous.

Women on the pill are more prone to blood clotting disorders. Whenever a woman develops a phlebitis, she should be taken off the pill. A woman with a past history of any clotting



**SWEET ADELINES**—The Atomic City Sweet Adelines will present a "Show-Glow" gala, Saturday, April 30 at the Oak Ridge Civic Center. Proceeds from the entire evening of entertainment and dancing will go to the American Cancer Society. Many of the members of the singing group are employees or wives of employees.

## Sweet Adelines to perform April 30 at Civic Center for cancer drive

As part of the Cancer Crusade for April, the Atomic City Sweet Adelines will have a "Show-Glow" April 30, at the Oak Ridge Civic Center. This will be an evening of entertainment and dancing with all proceeds going to the American Cancer Society.

The show begins at 8 p.m. with a mini-show presented by the 35-member chorus of Sweet Adelines, under the direction of Vickie Hobson. They will feature songs of the south in four part harmony.

At 8:45 the second portion of the evening begins with dancing to the music of the Music Crafters, a 16-piece band specializing in the big band sound—Jimmy and Tommy Dorsey, Ran Anthony, Glenn Miller—the sounds so popular in the 40's.

Snacks and soft drinks will be available. Tickets are \$5 and are available in advance from any member of the Sweet Adelines. Additional information may be obtained from Mrs. M. Jordan, Oak Ridge telephone 483-4146.

## patent granted ...

To Lyle G. Overholser, David R. Masters and John M. Napier, all of the Y-12 Plant, for "Method for Preparing Graphite."

disorders or phlebitis probably should avoid the pill.

There is sufficient evidence of an increase in the incidence of cancer of the uterus among pill users to cause some concern. It is of much greater concern in women who take estrogen after the menopause. The incidence of breast cancer does not appear to be affected by the use of the pill, and there is evidence that it may reduce the incidence of benign breast tumors.

### Less risky for young

In spite of all these dire consequences, the risk of a dangerous side effect, especially in young women, is extremely small. ("Young" is hard to define but is probably under age 30.) Taking the pill is less hazardous than going through with a pregnancy, a risk which most women gladly accept at the appropriate time. New oral contraceptives which use less estrogen may be safer, even though they may be slightly less effective in preventing a pregnancy. Careful periodic physical examinations should reduce the likelihood of complications — if the use of the pill is stopped when abnormalities first appear.

One final hazard has to be mentioned. In about 2 out of 1,000 women, fertility never returns after discontinuing the pill. It is fairly common for return of fertility to be delayed for several months.

## safe thinking ...

**NEWSPAPER SPLINT** — Rolled-up newspapers make a good makeshift splint to immobilize a broken bone, and prevent further injury.

**Editor's Note** — Don't be selfish with your safety tips! Call the Nuclear Division News Office, and tell us your stories or hints on safety.

## division death

Jerry Lynn Sumner, a machinist at the Paducah Plant, died at his Kuttawa, Ky., home March 18. Mr. Sumner joined Union Carbide in December.



**Mr. Sumner**

Survivors include his wife, Linda Sue Sumner; a brother, Bill H. Sumner; four sisters, Rita Turner, Trudy Littlejohn, Judy Lofton and Vanessa Sumner; and his mother, Eunice T. Sumner.

Funeral services were held at the Dunn Funeral Home with burial in Kuttawa Cemetery.



## Named buyer in Purchasing

Evelyn Robertson Cummings has been named a senior buyer in the Purchasing Division. A native of Delhi, La., she has spent most of her life in Knoxville.

Before joining Union Carbide in 1953, she worked for Fairchild Engine and Aircraft Corporation and the ANP project for General Electric.



Cummings

She and her husband, Roy C. Cummings, live at 5419 Pinecrest Road, Knoxville. They have a son, Michael.

## anniversaries

### ORGDP

30 YEARS

Barney D. Dixon, U-235 Separation Department.

25 YEARS

Jack Miller, William P. Constance, James D. Fletcher, Dorothy L. Davis, Rose M. Judd and Clarence C. Dawn.

20 YEARS

Carl D. Zehner and Donald R. Kelsheimer.

### Y-12 PLANT

30 YEARS

Reginald T. Lovell, Fabrication Division; and Cordell H. Dixon, Materials and Services.

25 YEARS

James B. Price, Joseph E. Webber, Walter B. Bailey, Virginia M. Giles, Alford F. Herrell and Glendon T. Miller.

20 YEARS

Patrick C. Dabbs II, Barbara S. Wilson and D. Jeffrey Bostock.

## question box

(Continued from page 5)

ployees." Rule No. 8, found on page 35 of *You at Union Carbide*, provides that refusal to comply with instructions or directions issued by Plant Protection personnel is prohibited conduct, which is a dischargeable offense. This is apart from any legal action which could result from a determination that there has been a violation of State and/or Federal laws.

### Discharge of acids

**QUESTION:** At what level of management are decisions made that permit the discharge of acid wastes to the floor drains rather than waiting for normal disposal? Are any Environmental Protection Agency guidelines pertaining to these disposals available to all employees?

**ANSWER:** Routine disposal of acid wastes to floor drains is neither a sanctioned nor environmentally acceptable procedure within Nuclear Division operations. Should anyone be requested to dispose of acid wastes in this manner, he should contact the plant Environmental Coordinator regarding disposal procedures. All liquid effluents from UCC-ND facilities are regulated by National Pollutant Discharge Elimination System (NPDES) permits which are administered by the Environmental Protection Agency (EPA), copies of which are retained by each plant's Environmental Coordinator. By-passing control systems by discharging acid wastes to floor drains could constitute a violation of the NPDES permits which specify environmentally acceptable levels of pollutants that may be discharged to the receiving stream.

Copies of water pollution regulations are available to the public and can be found in many public libraries.



**INSPECT FREEZING EQUIPMENT**—Rajotte and Cacheiro check the controlled freezing apparatus used in ORNL's Biology Division for the successful freezing of fetal rat pancreases. Critical cryobiological factors affecting cell survival identified in earlier Biology Division work were applied to the pancreas freezing study, including slow freezing and thawing and suspension of the cells in a protective additive.

## Pancreas freezing

(Continued from page 1)

study, since too much exocrine tissue in the transplant was found to cause erosion of the surface of the kidney by digestive enzymes.

The problems that might be encountered in transferring the ORNL technique to human organs are still undetermined. "One can find instances where you can freeze the cells of one particular species and there's no difficulty at all in transplanting that to other species," Mazur says, "but there are also plenty of examples where that's not true." The researchers however, are hopeful that any potential problems will not be insurmountable.

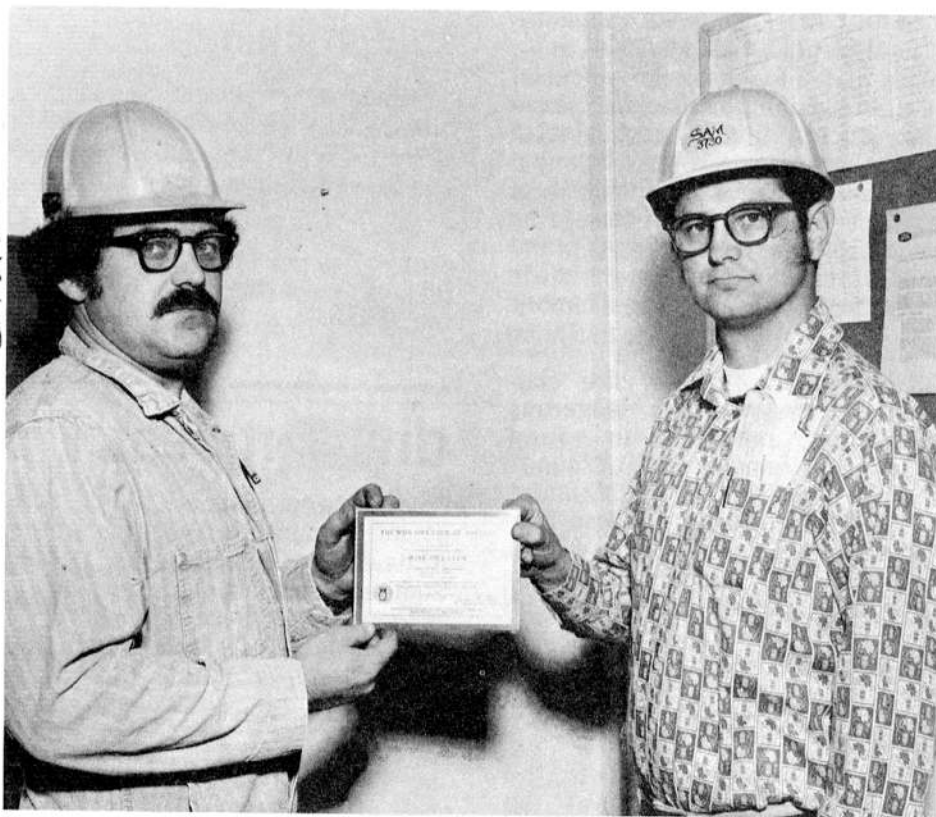
Mazur's group conducted the research on freezing fetal pancreases in collaboration with Raymond Rajotte, a visiting postdoctoral investigator from the University of Alberta, Canada. Before coming to ORNL, Rajotte had successfully frozen islets of Langerhans cells. Injecting these cells into human patients has already been

demonstrated by others to be successful in reversing diabetes; however, genetic matching is a necessity with this approach also, making the ability to freeze the islets cells important.

Mazur has headed ORNL's cryobiology group from its inception in 1959. "The successful freezing of embryos, and now fetal pancreases, represents an excellent example of the practical fruits of a basic attack on a biological problem," he says. "knowledge of the fundamental aspects of the response of cells to freezing has been gained not from studies of such complex biological systems as organs and embryos, but from earlier studies in the group on simpler types of cells—microorganisms and animal tissue culture cells."

### next issue ...

The next issue will be dated April 28. The deadline is April 20.



**2ND WISE OWL**—J.B. Howard, left, a maintenance mechanic in the Fabrication and Maintenance Division, recently became the second Paducah employee to receive membership in the Wise Owl Club. The organization recognizes persons who successfully prevent serious eye injury with the use of proper optical safety equipment. Howard's safety glasses probably saved his sight when a disengaged socket and joint struck his left eye. Presenting the plaque is his foreman, Sam Mabry.



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